FIG.10

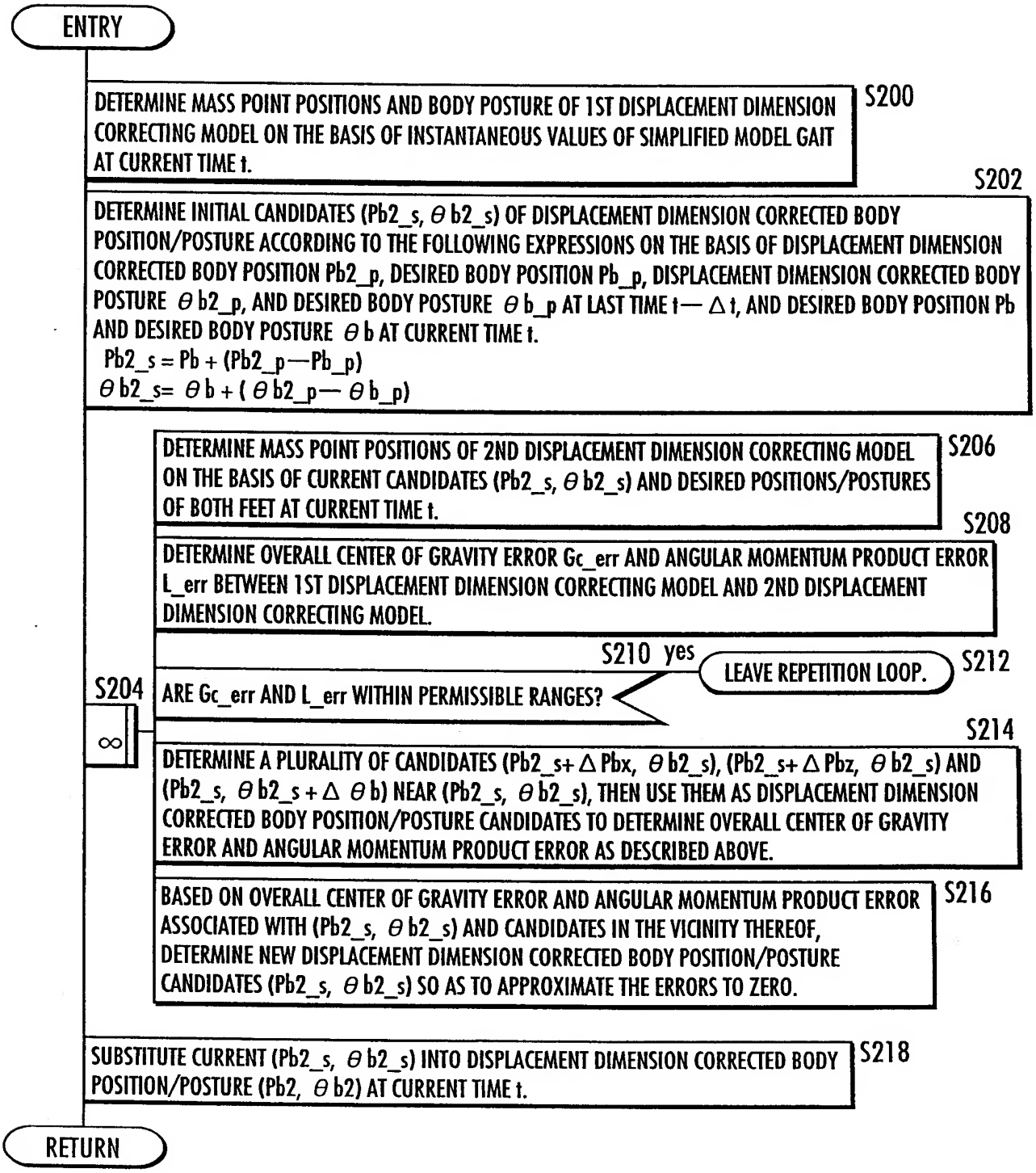

ENTRY
DETERMINE MASS POINT POSITIONS AND BODY POSTURE OF 1ST DISPLACEMENT DIMENSION CORRECTING MODEL ON THE BASIS OF INSTANTANEOUS VALUES OF SIMPLIFIED MODEL GAIT AT CURRENT TIME t.
S200
S202
DETERMINE INITIAL CANDIDATES (Pb2_s, θb2_s) OF DISPLACEMENT DIMENSION CORRECTED BODY POSITION/POSTURE ACCORDING TO THE FOLLOWING EXPRESSIONS ON THE BASIS OF DISPLACEMENT DIMENSION CORRECTED BODY POSITION Pb2_p, DESIRED BODY POSITION Pb_p, DISPLACEMENT DIMENSION CORRECTED BODY POSTURE θb2_p, AND DESIRED BODY POSTURE θb_p AT LAST TIME t— Δt, AND DESIRED BODY POSITION Pb AND DESIRED BODY POSTURE θb AT CURRENT TIME t.
Pb2_s = Pb + (Pb2_p—Pb_p)
θb2_s= θb + (θb2_p— θb_p)
S206
DETERMINE MASS POINT POSITIONS OF 2ND DISPLACEMENT DIMENSION CORRECTING MODEL ON THE BASIS OF CURRENT CANDIDATES (Pb2_s, θb2_s) AND DESIRED POSITIONS/POSTURES OF BOTH FEET AT CURRENT TIME t.
S208
DETERMINE OVERALL CENTER OF GRAVITY ERROR Gc_err AND ANGULAR MOMENTUM PRODUCT ERROR L_err BETWEEN 1ST DISPLACEMENT DIMENSION CORRECTING MODEL AND 2ND DISPLACEMENT DIMENSION CORRECTING MODEL.
S210 yes
LEAVE REPETITION LOOP.
S212
S204
ARE Gc_err AND L_err WITHIN PERMISSIBLE RANGES?
∞
S214
DETERMINE A PLURALITY OF CANDIDATES (Pb2_s+Δ Pbx, θb2_s), (Pb2_s+Δ Pbz, θb2_s) AND (Pb2_s, θb2_s + Δ θb) NEAR (Pb2_s, θb2_s), THEN USE THEM AS DISPLACEMENT DIMENSION CORRECTED BODY POSITION/POSTURE CANDIDATES TO DETERMINE OVERALL CENTER OF GRAVITY ERROR AND ANGULAR MOMENTUM PRODUCT ERROR AS DESCRIBED ABOVE.
S216
BASED ON OVERALL CENTER OF GRAVITY ERROR AND ANGULAR MOMENTUM PRODUCT ERROR ASSOCIATED WITH (Pb2_s, θb2_s) AND CANDIDATES IN THE VICINITY THEREOF, DETERMINE NEW DISPLACEMENT DIMENSION CORRECTED BODY POSITION/POSTURE CANDIDATES (Pb2_s, θb2_s) SO AS TO APPROXIMATE THE ERRORS TO ZERO.
S218
SUBSTITUTE CURRENT (Pb2_s, θb2_s) INTO DISPLACEMENT DIMENSION CORRECTED BODY POSITION/POSTURE (Pb2, θb2) AT CURRENT TIME t.
RETURN

FIG.23

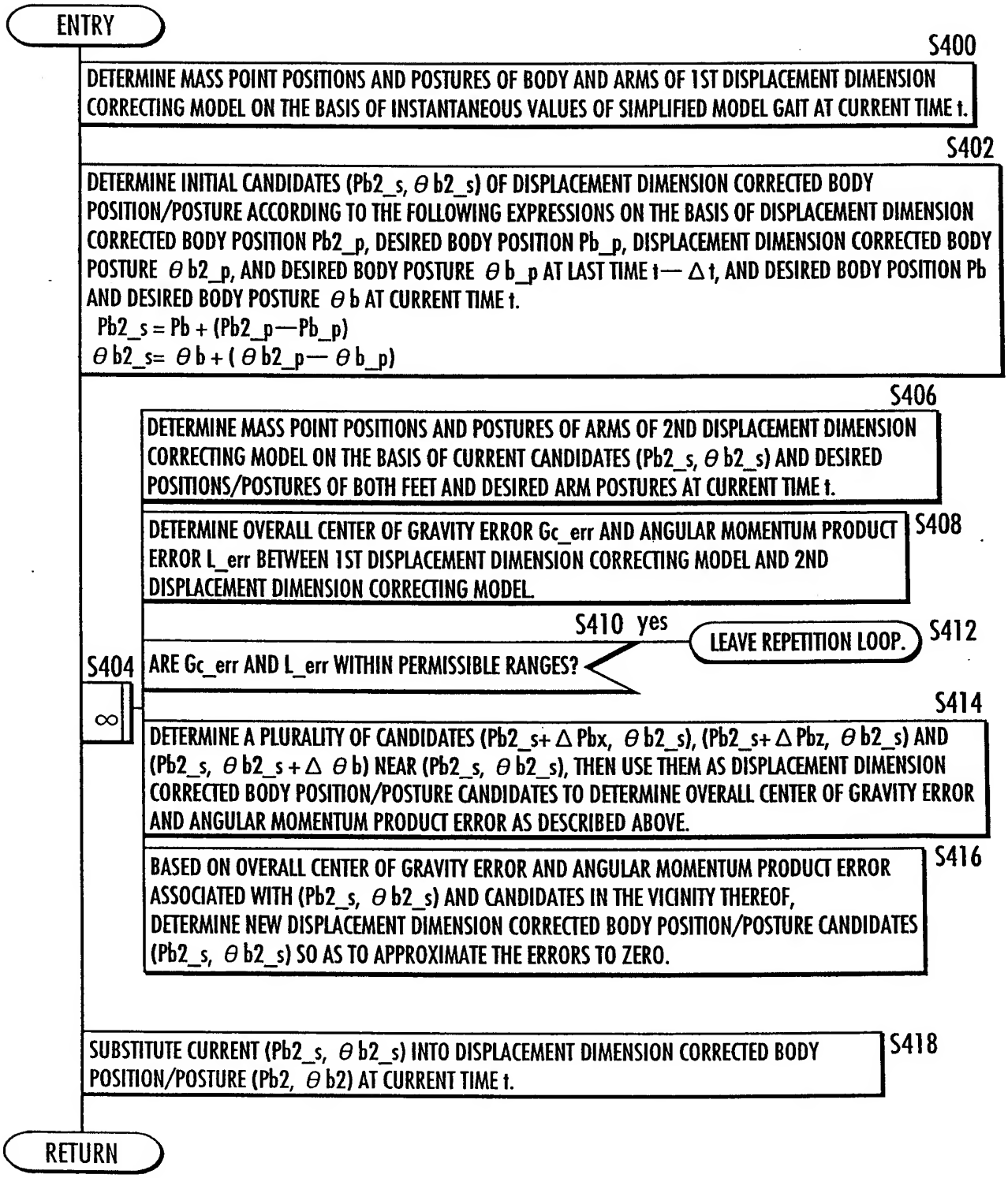

ENTRY
S400
DETERMINE MASS POINT POSITIONS AND POSTURES OF BODY AND ARMS OF 1ST DISPLACEMENT DIMENSION CORRECTING MODEL ON THE BASIS OF INSTANTANEOUS VALUES OF SIMPLIFIED MODEL GAIT AT CURRENT TIME t.
S402
DETERMINE INITIAL CANDIDATES (Pb2_s, θb2_s) OF DISPLACEMENT DIMENSION CORRECTED BODY POSITION/POSTURE ACCORDING TO THE FOLLOWING EXPRESSIONS ON THE BASIS OF DISPLACEMENT DIMENSION CORRECTED BODY POSITION Pb2_p, DESIRED BODY POSITION Pb_p, DISPLACEMENT DIMENSION CORRECTED BODY POSTURE θb2_p, AND DESIRED BODY POSTURE θb_p AT LAST TIME t— Δt, AND DESIRED BODY POSITION Pb AND DESIRED BODY POSTURE θb AT CURRENT TIME t.
Pb2_s = Pb + (Pb2_p—Pb_p)
θb2_s= θb + (θb2_p— θb_p)
S406
DETERMINE MASS POINT POSITIONS AND POSTURES OF ARMS OF 2ND DISPLACEMENT DIMENSION CORRECTING MODEL ON THE BASIS OF CURRENT CANDIDATES (Pb2_s, θb2_s) AND DESIRED POSITIONS/POSTURES OF BOTH FEET AND DESIRED ARM POSTURES AT CURRENT TIME t.
DETERMINE OVERALL CENTER OF GRAVITY ERROR Gc_err AND ANGULAR MOMENTUM PRODUCT ERROR L_err BETWEEN 1ST DISPLACEMENT DIMENSION CORRECTING MODEL AND 2ND DISPLACEMENT DIMENSION CORRECTING MODEL.
S408
S410 yes
LEAVE REPETITION LOOP.
S412
S404
ARE Gc_err AND L_err WITHIN PERMISSIBLE RANGES?
∞
S414
DETERMINE A PLURALITY OF CANDIDATES (Pb2_s+ΔPbx, θb2_s), (Pb2_s+ΔPbz, θb2_s) AND (Pb2_s, θb2_s + Δθb) NEAR (Pb2_s, θb2_s), THEN USE THEM AS DISPLACEMENT DIMENSION CORRECTED BODY POSITION/POSTURE CANDIDATES TO DETERMINE OVERALL CENTER OF GRAVITY ERROR AND ANGULAR MOMENTUM PRODUCT ERROR AS DESCRIBED ABOVE.
S416
BASED ON OVERALL CENTER OF GRAVITY ERROR AND ANGULAR MOMENTUM PRODUCT ERROR ASSOCIATED WITH (Pb2_s, θb2_s) AND CANDIDATES IN THE VICINITY THEREOF, DETERMINE NEW DISPLACEMENT DIMENSION CORRECTED BODY POSITION/POSTURE CANDIDATES (Pb2_s, θb2_s) SO AS TO APPROXIMATE THE ERRORS TO ZERO.
SUBSTITUTE CURRENT (Pb2_s, θb2_s) INTO DISPLACEMENT DIMENSION CORRECTED BODY POSITION/POSTURE (Pb2, θb2) AT CURRENT TIME t.
S418
RETURN

FIG.10

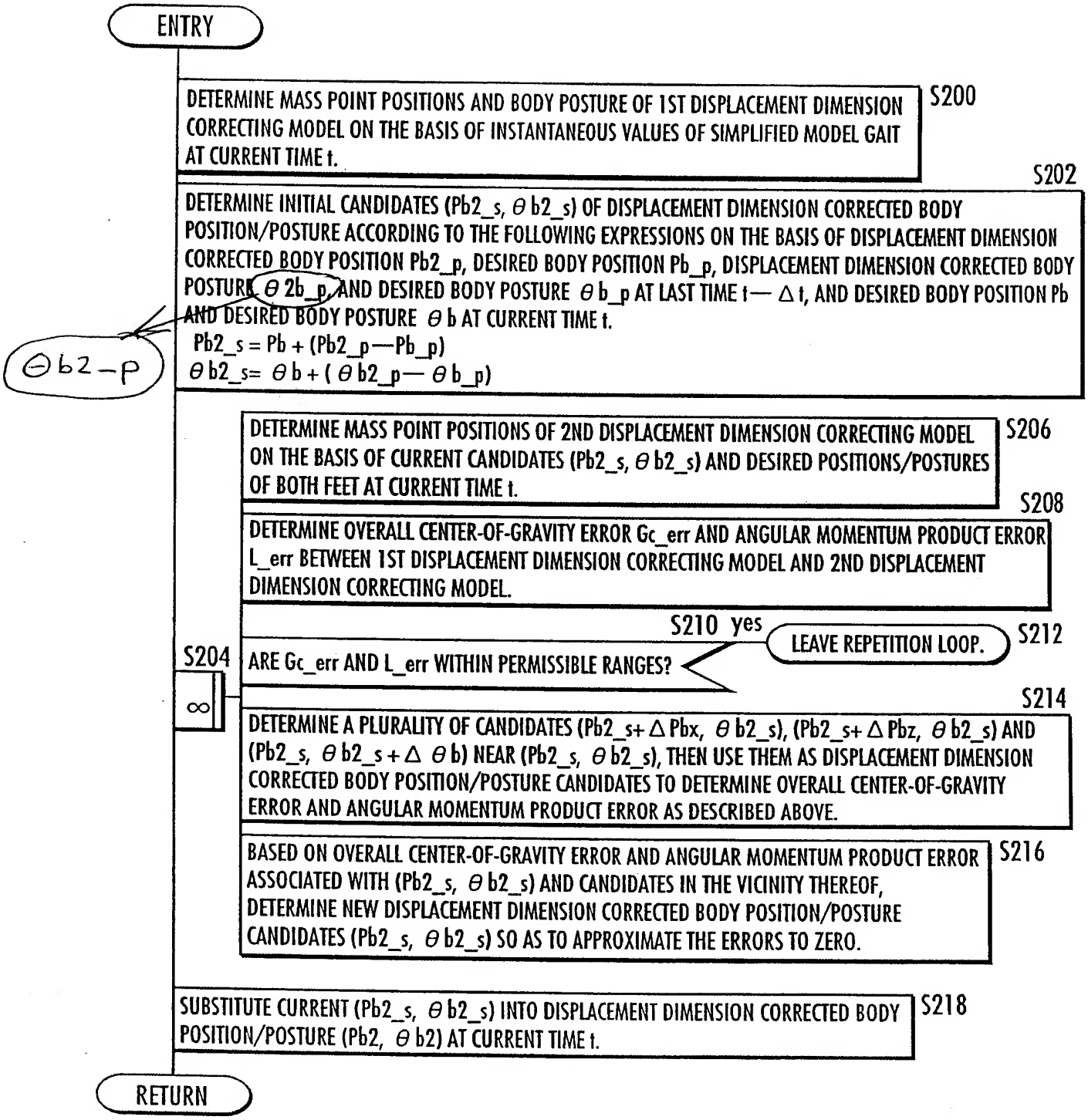
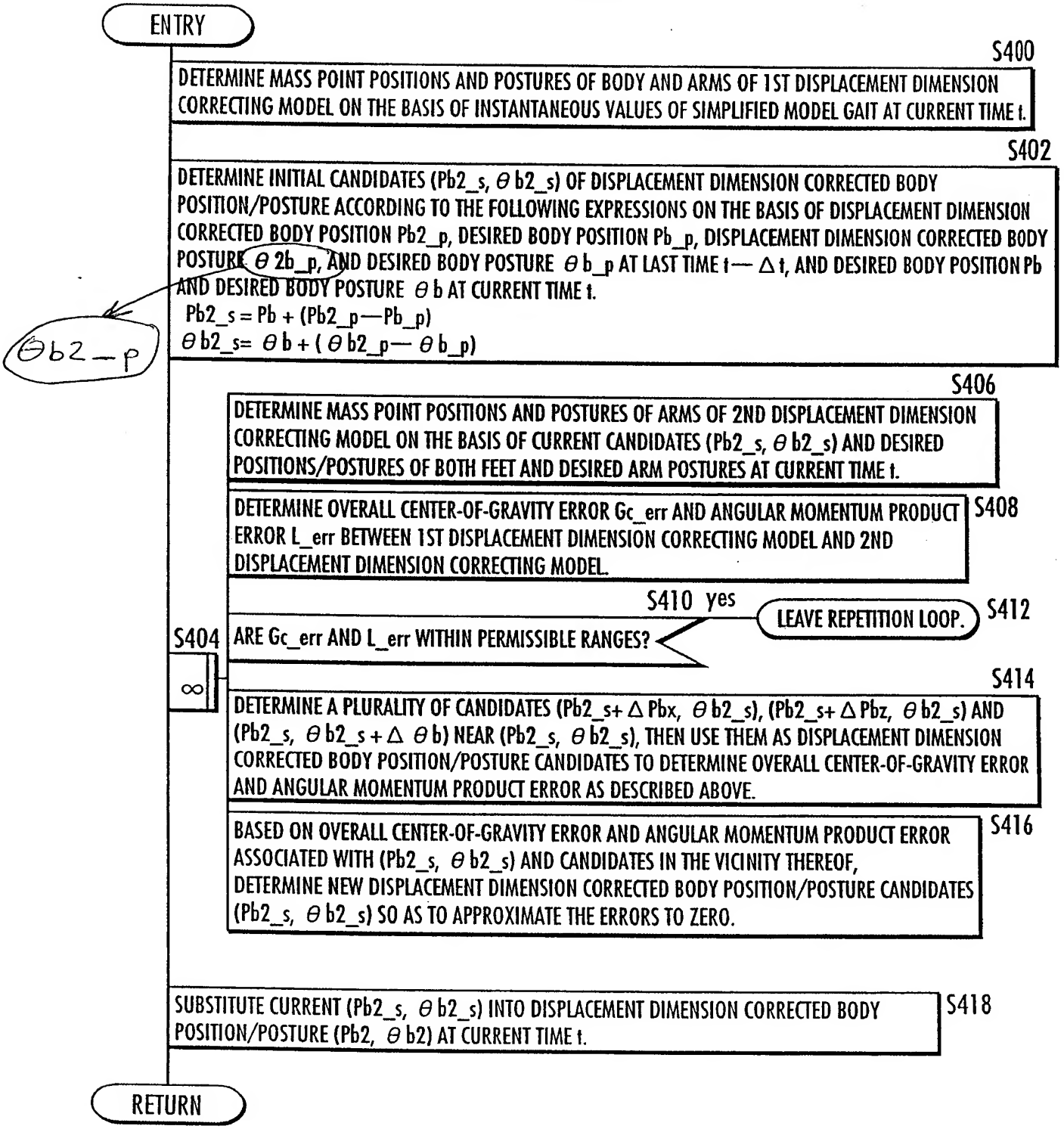

ENTRY
DETERMINE MASS POINT POSITIONS AND BODY POSTURE OF 1ST DISPLACEMENT DIMENSION CORRECTING MODEL ON THE BASIS OF INSTANTANEOUS VALUES OF SIMPLIFIED MODEL GAIT AT CURRENT TIME t.
S200
S202
DETERMINE INITIAL CANDIDATES (Pb2_s, θb2_s) OF DISPLACEMENT DIMENSION CORRECTED BODY POSITION/POSTURE ACCORDING TO THE FOLLOWING EXPRESSIONS ON THE BASIS OF DISPLACEMENT DIMENSION CORRECTED BODY POSITION Pb2_p, DESIRED BODY POSITION Pb_p, DISPLACEMENT DIMENSION CORRECTED BODY POSTURE θ2b_p, AND DESIRED BODY POSTURE θb_p AT LAST TIME t— Δt, AND DESIRED BODY POSITION Pb AND DESIRED BODY POSTURE θb AT CURRENT TIME t.
Pb2_s = Pb + (Pb2_p—Pb_p)
θb2_s= θb + (θb2_p— θb_p)
θb2-p
DETERMINE MASS POINT POSITIONS OF 2ND DISPLACEMENT DIMENSION CORRECTING MODEL ON THE BASIS OF CURRENT CANDIDATES (Pb2_s, θb2_s) AND DESIRED POSITIONS/POSTURES OF BOTH FEET AT CURRENT TIME t.
S206
S208
DETERMINE OVERALL CENTER-OF-GRAVITY ERROR Gc_err AND ANGULAR MOMENTUM PRODUCT ERROR L_err BETWEEN 1ST DISPLACEMENT DIMENSION CORRECTING MODEL AND 2ND DISPLACEMENT DIMENSION CORRECTING MODEL.
S210 yes
LEAVE REPETITION LOOP.
S212
S204
ARE Gc_err AND L_err WITHIN PERMISSIBLE RANGES?
∞
S214
DETERMINE A PLURALITY OF CANDIDATES (Pb2_s+ΔPbx, θb2_s), (Pb2_s+ΔPbz, θb2_s) AND (Pb2_s, θb2_s+Δθb) NEAR (Pb2_s, θb2_s), THEN USE THEM AS DISPLACEMENT DIMENSION CORRECTED BODY POSITION/POSTURE CANDIDATES TO DETERMINE OVERALL CENTER-OF-GRAVITY ERROR AND ANGULAR MOMENTUM PRODUCT ERROR AS DESCRIBED ABOVE.
BASED ON OVERALL CENTER-OF-GRAVITY ERROR AND ANGULAR MOMENTUM PRODUCT ERROR ASSOCIATED WITH (Pb2_s, θb2_s) AND CANDIDATES IN THE VICINITY THEREOF, DETERMINE NEW DISPLACEMENT DIMENSION CORRECTED BODY POSITION/POSTURE CANDIDATES (Pb2_s, θb2_s) SO AS TO APPROXIMATE THE ERRORS TO ZERO.
S216
SUBSTITUTE CURRENT (Pb2_s, θb2_s) INTO DISPLACEMENT DIMENSION CORRECTED BODY POSITION/POSTURE (Pb2, θb2) AT CURRENT TIME t.
S218
RETURN

FIG.23


ENTRY
S400
DETERMINE MASS POINT POSITIONS AND POSTURES OF BODY AND ARMS OF 1ST DISPLACEMENT DIMENSION CORRECTING MODEL ON THE BASIS OF INSTANTANEOUS VALUES OF SIMPLIFIED MODEL GAIT AT CURRENT TIME t.
S402
DETERMINE INITIAL CANDIDATES (Pb2_s, θb2_s) OF DISPLACEMENT DIMENSION CORRECTED BODY POSITION/POSTURE ACCORDING TO THE FOLLOWING EXPRESSIONS ON THE BASIS OF DISPLACEMENT DIMENSION CORRECTED BODY POSITION Pb2_p, DESIRED BODY POSITION Pb_p, DISPLACEMENT DIMENSION CORRECTED BODY POSTURE θ2b_p, AND DESIRED BODY POSTURE θb_p AT LAST TIME t— Δt, AND DESIRED BODY POSITION Pb AND DESIRED BODY POSTURE θb AT CURRENT TIME t.
Pb2_s = Pb + (Pb2_p—Pb_p)
θb2_s= θb + (θb2_p— θb_p)
θb2_p
S406
DETERMINE MASS POINT POSITIONS AND POSTURES OF ARMS OF 2ND DISPLACEMENT DIMENSION CORRECTING MODEL ON THE BASIS OF CURRENT CANDIDATES (Pb2_s, θb2_s) AND DESIRED POSITIONS/POSTURES OF BOTH FEET AND DESIRED ARM POSTURES AT CURRENT TIME t.
DETERMINE OVERALL CENTER-OF-GRAVITY ERROR Gc_err AND ANGULAR MOMENTUM PRODUCT ERROR L_err BETWEEN 1ST DISPLACEMENT DIMENSION CORRECTING MODEL AND 2ND DISPLACEMENT DIMENSION CORRECTING MODEL.
S408
S410 yes
LEAVE REPETITION LOOP.
S412
S404
ARE Gc_err AND L_err WITHIN PERMISSIBLE RANGES?
∞
S414
DETERMINE A PLURALITY OF CANDIDATES (Pb2_s+ Δ Pbx, θb2_s), (Pb2_s+ Δ Pbz, θb2_s) AND (Pb2_s, θb2_s + Δ θb) NEAR (Pb2_s, θb2_s), THEN USE THEM AS DISPLACEMENT DIMENSION CORRECTED BODY POSITION/POSTURE CANDIDATES TO DETERMINE OVERALL CENTER-OF-GRAVITY ERROR AND ANGULAR MOMENTUM PRODUCT ERROR AS DESCRIBED ABOVE.
S416
BASED ON OVERALL CENTER-OF-GRAVITY ERROR AND ANGULAR MOMENTUM PRODUCT ERROR ASSOCIATED WITH (Pb2_s, θb2_s) AND CANDIDATES IN THE VICINITY THEREOF, DETERMINE NEW DISPLACEMENT DIMENSION CORRECTED BODY POSITION/POSTURE CANDIDATES (Pb2_s, θb2_s) SO AS TO APPROXIMATE THE ERRORS TO ZERO.
SUBSTITUTE CURRENT (Pb2_s, θb2_s) INTO DISPLACEMENT DIMENSION CORRECTED BODY POSITION/POSTURE (Pb2, θb2) AT CURRENT TIME t.
S418
RETURN